

Red Line/Blue Line Connector Project

Boston,
Massachusetts

Massachusetts Department of Transportation
Boston, Massachusetts



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Introduction

This technical memorandum describes the regulatory framework for the Red Line/Blue Line Connector Project's Cambridge Street study area, identifies existing land use conditions in the study area, explains the methodology to determining potential impacts, and provides a discussion of these impacts to land uses in the project area.

1.1 Overview

The Cambridge Street corridor is a dense urban sector of Downtown Boston (Figures 1-1a-c). There are approximately 560 individual properties along the corridor that are primarily commercial/retail and institutional, with some residential elements in mixed-use buildings and a few residential buildings. The entire Cambridge Street corridor underwent substantial streetscape improvements, including repaving and repairing the street, landscaping, traffic calming measures, pedestrian walkway improvements, and sidewalk widening. There are standard city sidewalks located on either side of Cambridge Street and two urban park areas for pedestrian use. Due to the lack of subway service along this corridor, it is heavily utilized by pedestrians walking from Government Center to Beacon Hill or the West End.

1.2 Regulatory Context

The Massachusetts Environmental Policy Act (MEPA) Certificate issued by the Secretary of Energy and Environmental Affairs required that the Massachusetts Department of Transportation (MassDOT) include the following documentation in the Draft Environmental Impact Report (DEIR):

- Inventory of public parks, recreation areas, and conservation lands within 100 feet of the Cambridge Street corridor;

- Clarification of right-of-way ownership and DCR controlled land areas and roadways;
- Description of affected wetlands resources; and
- Illustration of Massachusetts General Law Chapter 91 (Public Waterfront Act) jurisdiction.

The primary regulatory restrictions on land use within the project area come from the 97th Amendment to the Massachusetts Constitution protecting conservation and recreation uses, Massachusetts General Law Chapter 91 protecting the public's rights in Commonwealth Tidelands and the City of Boston Zoning Code.

1.2.1 Massachusetts Constitution Article 97

In November 1972, Massachusetts citizens approved ballot Article 97, which became the 97th Amendment to the Massachusetts Constitution. With respect to open space preservation, the Article includes the following provision:

"The people shall have the right to clean air and water, freedom from excessive and unnecessary noise, and the natural, scenic, historic, and esthetic qualities of their environment; and the protection of the people in their right to the conservation, development and utilization of the agricultural, mineral, forest, water, air and other natural resources is hereby declared to be a public purpose...Lands and easements taken or acquired for such purposes shall not be used for other purposes or otherwise disposed of except by laws enacted by a two thirds vote, taken by yeas and nays, of each branch of the general court."

In 1973, Attorney General Robert Quinn stated that the types of "natural resources" covered by Article 97 included "open spaces, natural areas, and parks and historic districts and sites." His opinion continued to broaden the Article's jurisdictional scope; "lands and easements taken or acquired for specific purposes not found verbatim in Article 97 as nevertheless subject to Article 97 if reasonable doubt exists concerning their actual status."¹ Application of Article 97 has been both retroactive and prospective (i.e., lands taken or acquired for Article 97 purposes both before and after passage of the amendment are covered).

Further research at the Suffolk County Registry of Deeds is required to determine whether easements or deed restrictions exist for the property that limit the use of Cardinal Cushing Park as parkland, protected under Article 97. The Charles River Reservation is a series of state-owned conservation and recreation deeded properties that meet the criteria of Article 97.

¹ Massachusetts Opinion of Attorney General. No. 45, 1973.

1.2.2 Massachusetts Public Trust Act and Wetlands Protection Act

The Massachusetts Public Waterfront Act, Massachusetts General Law Chapter 91, protects the public's rights in Commonwealth Tidelands. These rights include fishing, fowling, and navigation. Commonwealth Tidelands are defined as filled tidelands (under tidal waters seaward of the present mean high water (MHW) shoreline) and flowed tidelands. The Act authorizes the Waterways Regulations; 310 CMR 9.00, which promulgates rules and regulations to protect the public's access to, and use of, Commonwealth Tidelands. The jurisdictional boundary for these regulations includes a portion of the Red Line/Blue Line Connector Project within the western portion of the project area; approximately from the Charles River shoreline to the Anderson Street intersection (Figure 1-2). The majority of these Tidelands are classified as Landlocked Tidelands, which are exempt from the Waterways permitting process. However, these Tidelands are subject to the Public Benefit Determination regulatory requirements (310 CMR 11.00). The Public Benefits regulations require project proponents to demonstrate the public benefit of the use of these Tidelands and ensure that the public's rights are being upheld.

This report also identifies areas protected under the Massachusetts Wetlands Protection Act and its implementing regulations (310 CMR 10.00). The westernmost section of the study area includes Riverfront Area and Bordering Land Subject to Flooding (BLSF) resources (Figure 1-2). The BLSF boundary is the estimated maximum lateral extent of flood water which will result from the statistical 100-year frequency storm. This resource area is determined by reference to the most recently available flood profile data prepared for the City under the National Flood Insurance Program (NFIP), administered by the Federal Emergency Management Agency.

1.2.3 Boston Zoning Code

The Cambridge Street Corridor is split between the Cambridge Street North and the City of Boston Proper Zoning Districts (Figure 1-3). The Boston Proper Zoning District boundary runs down the center of Cambridge Street, from the Charles MGH Station to Staniford Street and extends south all the way to Boylston Street in the Back Bay section of Boston. The Cambridge Street North district runs along the Cambridge Street Edge, northward, and is bounded by Charles Street (north) on the west and Staniford Street on the east.

There are two Boston Proper Zoning Subdistricts within study area; the L-2 Business District and the H-2 Residential District. Properties along the south side of Cambridge Street are included in the L-2-65 Business District; Local and Retail & Service Stores. Properties just to the south of the Business District are located within the H-2-65 Residential District; Apartments. Dimensional requirements of these Districts are listed below in Table 1-1.

Table 1-1 Boston Proper Zoning District – Subdistricts and Dimensional Requirements

District	Use Type	Lot Size (min. sq ft)	Lot Width (min. ft)	Floor Area Ratio (maximum)	Height (ft)	Open Space (min. sq ft)	Front Yard (min depth. ft)	Setback (min. dist. from lot)	Rear yard (max. % occup.)
L-2	Any dwelling	none	none	2	65	150	20	$\frac{H+L^1}{6}$	none
L-2	Other uses	none	none	2	65	none	20	$\frac{H+L^1}{6}$	none
H-2	Any dwelling	none	none	2	none	150	20	$\frac{H+L^1}{6}$	30
H-2	Other Uses	none	none	2	none	none	20	$\frac{H+L^1}{6}$	30

Source: City of Boston Zoning Code, Article 13, Table B.

1 Length of wall parallel (or within 45° of parallel) to lot line, measured parallel to lot line at greatest length above the height below which no setback is required.

The City of Boston zoning regulations that are more applicable to the proposed project are within Article 8; Regulation of Uses. This Article specifies the baseline of allowable and conditional uses within the City, including the project area. Table A of the ordinance lists all uses and includes a separate section for transportation uses. Railroad facilities are allowed in the following zones within the project area: Local and General Business, and Restricted and General Industrial use zones.

The Cambridge Street North District includes zoning subdistricts, height, and Floor Area Ratio (FAR) restrictions for this portion of Cambridge Street. The Charles Street Jail North and South Protection Areas are both Planned Development Areas (PDA) under the Boston Zoning Code Article 47A. The Charles Street PDAs were established to ensure proper redevelopment of these historic properties. A PDA is an overlay district that establishes special zoning controls for large or complex projects. The purpose for establishing a PDA is to establish a more flexible zoning law; to allow for the diversification and expansion of Boston's economy and to encourage development that knits together the surrounding neighborhoods through a new urban design for the area. They are subject to use height and Floor Area Ratio limitations codified in the Boston Zoning Code Article 47A Section 12.

1.3 Land Use and Transportation Plans

The following land use and transportation plans apply to the Cambridge Street Corridor:

- *City of Boston Open Space Plan 2008-2012*, Parks and Recreation Department (2008): The Plan analyzes existing open space lands and facilities and assesses future needs. As discussed above in Section 4.2.3, the Cardinal Cushing Park and Charles River Reservation are protected parks located within the project area.
- *Access Boston 2000 – 2010*, Boston Transportation Department (2000): Boston's first comprehensive transportation plan. The plan calls for decongestion of local-business main streets, district-based restrictions on new parking, traffic calming on residential streets, investment in a next generation of transit projects, amenities for bus riders, and transit-oriented development.
- *Journey to 2030*, Boston Metropolitan Planning Organization (MPO) (2007): This is the latest regional transportation plan completed by MPO, outlining a regional transportation vision through the year 2030. The Plan builds on Boston's role as the transportation and commercial hub of New England while planning for greater lateral connectivity across communities in the region.
- *Framework for Planning and Development of the West End Area*, BRA (2003): This document is not a master plan; rather it is a framework to offer insight into the values, priorities, and expectations of the West End community. This document offers guidance to prospective developers, criteria to be considered by public officials in planning and development, and stands as a written record of community concerns and issues.
- *Cambridge Street Plan*, BRA (1991): This Plan was developed to ensure that urban planners and developers create a grand promenade for pedestrians and a maintain Cambridge Street as a major traffic connector to downtown. The plan also called for the creation of a “cohesive identity” between the West End and Beacon Hill neighborhoods, which are segmented by the corridor. Strategies to achieve these goals included:
 - Developing a balanced, mixed use economy of both commercial and residential space with retail space at grade and residential, office or laboratory space above;

- Siting active uses on the ground floor fronting Cambridge Street at grade, such as retail stores, restaurants, and coffee shops, to create sidewalk activity;
- Developing a locally-oriented, retail activity to serve the needs of the community such as grocery stores, convenience stores, and pharmacies;
- Promoting sidewalk businesses such as cafes with outdoor seating, produce stands, and flower shops along the sunlit north side where sidewalk width is adequate;
- Developing Charles River Plaza as a major focal point and gathering space;
- Ensuring that new development minimizes the conflict between pedestrian flow on the sidewalk and cars using side streets and accessing buildings or services such as gas stations; and

Developing uses at the edges of Charles Circle which will encourage activity, such as restaurants or the point of origin for a tourist walk along the Black Heritage Trail through historic Beacon Hill.

1.4 Proposed Development and Transportation Projects

Although the Government Center Garage Project does not directly abut Cambridge Street, it is 300 to 400 feet north of the corridor and therefore will affect the residents and businesses along the Cambridge Street corridor. This project proposes to redevelop approximately 30 acres of urban land. The project includes replacing the Government Center Parking Garage building and the city-owned buildings west of Bowker Street with approximately 3.8 million square feet of mixed use development divided among five major buildings, ranging in height from approximately 60 to 710 feet. It will include space for office, residential, hotel, and retail use, as well as space for the surface MBTA Haymarket Station, and the District A-1 Police Station. The proposed project aims to implement smart growth and initiate transit-oriented development that the City and Commonwealth seek to promote by:

- Concentrating new commercial, residential, and retail development near subway, commuter rail, and bus lines that provide easy access to the site from throughout all Boston neighborhoods as well as the city's suburbs, greatly reducing the public's reliance on private automobiles; and
- Creating new residences within Government Center, contributing to the creation of a denser, more mixed-use urban core, helping to relieve regional development pressures in outlying areas.

The Government Center Station Redevelopment project is a proposed joint project between the City of Boston and the Massachusetts Bay Transit Authority (MBTA). The project would redesign the Government Center Headhouse and improvements to the Green, Orange and Blue Line platforms. The historic secondary exit from the Government Center Station (adjacent to the Blue Line platform) would also be improved for emergency egress purposes.

The Urban Ring project is a proposed major new transit service that would run in a circular corridor just outside of central Boston. The proposed corridor includes a connection with the nearby Kendall/MIT Station across the Charles River in Cambridge (next outbound Red Line stop from the Charles/MGH Station). The Urban Ring Transit Major Investment Study (MIS) was undertaken in 2001 by the Executive Office of Transportation. The MIS recommended the basic route for the Urban Ring and that the project implementation is carried out in three phases:

- Phase 1: increased bus service in the urban ring corridor;
- Phase 2: creation of Bus Rapid Transit (BRT) lines operating in protected rights-of-way for portions of the corridor and improved connections to the existing MBTA radial transit system; and
- Phase 3: addition of rail rapid transit for a portion of the corridor.

A Notice of Project Change (NPC) was submitted to the Secretary of Energy and Environmental Affairs in June 2009, according to MEPA regulations. The NPC was submitted in response to the March 6, 2009 MEPA Certificate on the Revised DEIR that set forth three primary requirements to be addressed in the NPC:

- *Early Action Implementation Plan:* to identify near-term actions that EOT can undertake to improve transit service in the corridor.
- *Implementation Plan for the Full Project:* to define project phasing and implementation approach for the full Urban Ring Phase 2 project.
- *Comment Responses:* to provide thorough responses to the comment letters received on the RDEIR document.

The Notice of Project Change was withdrawn on October 15, 2009, in light of new circumstances that may affect the decision-making process. Specifically, the Commonwealth completed a rail acquisition agreement with CSA, and approval of the Boston Regional Transportation Plan is imminent [the draft was approved on

October 29, 2009]. Both of these developments could affect implementation of the Urban Ring project².

1.5 Methodology

For the purposes of this project, direct impacts are defined as displacements of properties or property acquisitions required to complete the project. Indirect impacts include growth inducing effects and changes in the pattern of land use, population density or growth rates. Indirect impacts may also result from actions which may have both detrimental and beneficial effects. Although often classified as a temporary indirect impact, construction impacts will be addressed separately because the majority of land use impacts from the proposed project are associated with construction.

² Letter from James Aloisi, Secretary of EOT, on October 15, 2009 to Ian Bowles, Secretary of EEA.

2

Affected Environment

This Section describes existing land use conditions in the Cambridge Street study area and population and employment data that help to characterize these conditions.

2.1 Existing Land Use

Major activity centers within the Cambridge Street corridor include the Massachusetts General Hospital (MGH), primarily located on the northwestern side of the corridor; the Charles River Plaza retail center (Whole Foods, CVS, etc.); high density housing to the north (Charles River Park and West End Apartments); and hotels (Holiday Inn, Liberty Hotel, and Extended Stay) (Figures 1-1a-b). Farther east is the Government Center area and City Hall Plaza with a number of Government Buildings (Government Service Center Charles Hurley Building, Massachusetts Department of Mental Health, Suffolk County Courthouses, Boston City Hall, and John F. Kennedy Federal Building). To the south of the corridor is the Beacon Hill neighborhood, a prominent, historic residential neighborhood of Boston.

Land uses within 500 feet of the Cambridge Street Corridor were evaluated in the study area (Appendix). Out of approximately 560 properties within this area, 27 properties were owned by local, state or federal government entities. These account for some of the largest properties along the corridor identified above, ranging in size up to 285 acres at the Government Center/City Hall Plaza that is owned by the City of Boston. The remaining properties are owned by private companies. Some of these companies are nonprofit organizations and institutions such as Suffolk University and Partners Health Care Inc., which owns all MGH properties.

Established in 1811, MGH is one of the corridor's primary landholders. A number of MGH buildings along the corridor are historic structures, as described in

The Historic and Archeological Resources Memo. The largest cluster of hospital buildings is at the western terminus of Cambridge Street where the MGH Yawkey Center for Outpatient Care and the MGH Main entrance are located.

Three additional institutional/governmental land uses are located along Cambridge Street:

- Leverett Saltonstall Building, 100 Cambridge Street;
- Government Service Center Charles F. Hurley Building, 19 Staniford Street; and
- Boston Fire Department Engine 4, 200 Cambridge Street.

Commercial uses along the corridor primarily consist of restaurants/cafes, convenience stores, liquor stores, and professional office spaces. Notable commercial uses along include:

- Leverett Saltonstall Building – Commercial 1st Floor:
 - Citibank
 - Bright Horizon's daycare
 - Rite Aid pharmacy
- Charles River Plaza:
 - Whole Foods
 - CVS
- Holiday Inn and 1st Floor Retail:
 - Foster's Bar & Grill, and
 - Au Bon Pain.

Residential uses along Cambridge Street are interspersed in various structural types but are largely brick frame condominiums with first floor retail. There is a large residential neighborhood, Beacon Hill, directly south of the corridor. Dense high-rise apartment complexes are located to the north within the West End neighborhood. Along the south side of Cambridge Street a number of Beacon Hill residential buildings are visible on streets intersecting with the corridor. The architecture of these buildings are mostly brick row houses; styles include the Federal, Greek

Revival and Victorian periods, as well as early 20th-century Colonial Revival homes and tenements.

There are a number of historic properties along the corridor that are in active use today such as the Old West Church and Otis House. A full inventory of historic resources is provided in the Historic and Archeological Resources Memo. There are only two open space areas along the corridor, discussed in Section 2.3.

2.2 Population and Employment

The project study area is densely populated and virtually fully built-out with little to no vacant land. The combined population of the four adjacent U.S. Census Tracts along the corridor was 17,747 people in 2000 and the combined land area is 0.76 square miles as shown in Table 2-1.

Table 2-1 Population

Census Tract	Neighborhood	Square Miles	Population	Pop. Density (persons/sq mi)	Households	Housing Density (units/sq mi)
020100	Back Bay South	0.12	3,635	28,622	2,352	18,520
020200	Back Bay North	0.04	4,157	101,390	2,666	65,024
020300	West End	0.32	5,881	18,095	3,059	9,412
030300	Government Center	0.28	4,074	14,345	2,353	8,285
TOTALS		0.76	17,747		10,430	

Source: U.S. Census 2000 Tracts 201, 202, 203, and 303.

The study area yields a high population density of 23,351 persons per square mile, which is projected to increase by approximately 16,000 persons by 2030. By point of reference, population density for the entire City of Boston in 2006 was 12,772 persons per square mile³ (Figure 2-1). The high density within the study area is primarily due to compact living within the West End high-rise apartment buildings located north of the Cambridge Street corridor.

³ U.S. Census Bureau, 2006-2008 American Community Survey

Table 2-2 Population, Housing and Employment

Location	Existing		Projections		
	2000	2010	% Change	2030	% Change
Population	17,747	18,205	2.58	18,707 ²	2.76
Population density (persons/sq mi.)	23,351	23,954	2.58	24,614	2.76
Housing Households	10,430	10,630	1.92	11,051 ³	3.96
Housing density (units/sq mi.)	13,724	13,987	1.92	14,541	3.96
Employment	14,757 ¹			15,639	5.98

Source: U.S. Census Tracts 201, 202, 203, and 303.

1 Percentage of total Boston employment (2.89%).

2 Derived from Metropolitan Area Planning Council Population, Housing and Employment Projections 2010-2030, January 2006; percentage of total Boston population (2.89%).

3 Derived from Metropolitan Area Planning Council Population, Housing, and Employment Projections 2010-2030, January 2006; based on percentage of total Boston households (4.3%).

Table 2-2 shows that the number of households within the study area in 2000 was 10,430 households. This number of households is projected to remain fairly constant over the next two decades, increasing only by approximately 200 households from 2000 to 2010 and 400 households by 2030. Housing density within the study area is projected to grow by approximately six percent between 2010 and 2030

(Figure 2-2). This high housing unit density; 13,724 units per square mile compared to 5,314 units/48 sq. mi. for the entire City, is primarily due to the highly urbanized sector that includes both the compact Beacon Hill neighborhood and the high-yield apartment buildings within the West End neighborhood.

Employment in 2000 within the study area was approximately 14,757 people, which is expected to rise to 15,639 people (5.98 percent increase) by 2030. It is not surprising for this area of Boston to have a steady increase in employment since this sector includes one of the largest hospital systems in the Northeast (MGH), along with supporting commercial businesses and services (e.g., hotels and restaurants).

2.3 Parks and Recreational Uses

The Cambridge Street corridor is a very urbanized sector of downtown Boston. There are only two protected parks located within the project area: Cardinal Cushing Park and the Charles River Reservation.

Cardinal Cushing Park, owned by the Boston Redevelopment Authority (BRA), is within the eastern portion of the corridor between the New Chardon and Sudbury Street intersections with Cambridge Street (Figure 2-3a-b). It is adjacent to the prominent One Bowdoin Square office high rise building that contains offices for

numerous law firms, insurance guaranty companies, MGH academies and centers, and local offices for Massachusetts Senator John Kerry. The Park is a small, urban park with a brick surface, park benches, a central flower bed, and some grassy areas. It is primarily used as a brief resting place for pedestrians and a place to eat lunch for local employees. The property is designated as a park in the City of Boston's 2008-2012 Open Space Plan. The Open Space Plan asserts that the park is permanently protected from land uses other than conservation or recreation purposes under the 97th Amendment to the Massachusetts Constitution (Article 97). The adjacent parcel is designated by the Boston Public Works Department as a "public way", which includes the existing Bowdoin Station Headhouse.

The Charles River Reservation is a linear park stretching from Boston Harbor up the river for 20 miles. The lower half of the Reservation, from downtown Boston to the Watertown Dam, is called the Charles River Basin, which includes the Esplanade on the Boston side. The project work limits, adjacent to the Charles/MGH Station, fall within the Reservation area. According to the City of Boston's 2008-2012 Open Space Plan, the Charles River Basin is protected open space under Article 97.

In addition to these protected parks, there is a small grassy area on the corner of North Anderson and Cambridge Streets, owned by MGH. This 1-acre parcel is not classified as a park by the City of Boston; however, it includes green space and shaded benches for public use, as shown in Figure 2-4.

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3

Environmental Consequences

The MEPA regulations require an assessment of direct and indirect impacts for all phases of a proposed project, including land acquisition (301 CMR 11.07). This Section describes the methodology for determining direct and indirect impacts to land uses identified in Section 2, identifies these and construction related impacts, and highlights the following specific impacts to land uses, as requested in the MEPA Certificate:

- Impacts to each property as a result in change of access or construction impacts;
- Impacts to Cardinal Cushing Park from excavation and possible expansion of the park under the Bowdoin eliminated alternative;
- Impacts to shade trees and mitigation;
- Impacts to Ch 91, riverfront and floodplain areas, if any; and
- Easements for construction or permanent alterations.

Indirect land use impacts may be caused by both Build Alternatives, due to either decreased or increased accessibility to the eastern corridor via Bowdoin Station. Both alternatives create beneficial impacts due to the growth-inducing effects created by additional rail service. Construction-related impacts to land uses would be caused by traffic detouring during construction and decreased accessibility to some businesses.

3.1 Project Overview

The Red Line/Blue Line Connector Project would consist of a construction phase, during which the Blue Line extension from the Bowdoin to the Charles/MGH Station would be built, and the operational phase, during which the Blue Line trains would continue past the current Bowdoin Station to the Charles/MGH Station.

Construction phase activities could adversely impact environmental justice populations due to noise, air emissions, and traffic (pedestrian and automobile) disruption. However, each of these adverse impacts is very local in nature, with measurable effects generally limited to a few hundred feet from the source. During operations, potential adverse impacts to environmental justice populations could arise from increased noise or vibration, decreased access to parks, and changes in the social environment (neighborhood fragmentation). Operational phase activities (which are expected to continue indefinitely into the future) also may beneficially impact environmental justice populations due to increased access to transit. These beneficial impacts can be local to distant in nature: local effects accrue to persons within walking distance of the stations, while distant effects accrue to persons using the connected transit service to access points outside of the Project area.

As described in the Definition of Alternatives Report,⁴ the Build Alternatives under consideration include eliminating or relocating the Bowdoin Station (Appendix A and B). The current configuration of Bowdoin Station does not facilitate an extension to the Charles/MGH Station, and it would require relocating both platforms to accommodate longer (six car) trains for the extended service. However, few passengers board Blue Line trains at Bowdoin Station compared to the nearby Government Center Station. Accordingly, eliminating the station is one alternative for the Project. In any case, there would not be any new stations constructed for the Project. A new underground platform for the Blue Line would be constructed adjacent to the existing Charles/MGH Station headhouse and elevated platform, at a lower elevation, for the Red Line. Connections between the two platform levels would be made via stairways, escalators and elevators.

There are no location or construction alternatives. A cut-and-cover construction method for the entire Project was initially considered but was determined to result in excessive cost and traffic disruption along Cambridge Street between Bowdoin Station and Charles/MGH Station. This construction method is therefore considered infeasible for this segment; further analysis of this method was not completed. Cut-and-cover construction would be used for a short (800-foot long) segment east of Bowdoin Station and for the two tail tracks west of the Charles/MGH Station.

The following sections describe the potential adverse or beneficial impacts to environmental justice populations that would result from the Build Alternatives and the construction activities. The No-Build Alternative is also described, as a baseline condition to which the operational alternatives may be compared.

⁴ EOT. 2009. *Red Line-Blue Line Connector Project- Definition of Alternatives Report*. Commonwealth of Massachusetts, Executive Office of Transportation and Public Works. Prepared by Vanasse Hangen Brustlin, Inc.: Boston.

3.2 No-Build Alternative

Under the No-Build Alternative, it is assumed that Blue Line operations would remain similar to current operations with the exception of implementing the following infrastructure improvements proposed in the MBTA's long range transportation plan:⁵

There are no direct impacts associated with the No-Build Alternative because no changes to the Massachusetts Bay Transit Authority (MBTA) subway system would occur and therefore no land acquisitions would be necessary. In addition, no construction would occur to create associated temporary impacts.

3.3 Alternative 1: Eliminate Bowdoin Station

This Alternative would eliminate the existing Bowdoin Station (Appendix A). The station would be decommissioned or demolished. Riders would use the Government Center Station, about 1,000 feet to the east, or the new station at Charles/MGH, about 2,000 feet to the west, to access the Blue Line or Red Line. Preliminary design retains the Bowdoin Station headhouse, adjacent to the Cardinal Cushing Park property, for use as emergency egress from the subway. However, future design schemes could include the elimination of the headhouse structure to accommodate an expanded park, if the City desires.

3.3.1 Direct Impacts

There are no direct permanent impacts to land uses from Alternative 1, as there are no proposed land acquisitions or displacement of uses.

3.3.2 Indirect Impacts

Indirect impacts to land uses within the project area are limited to temporary changes in accessibility to businesses from the sidewalk within proposed construction work zones at the Charles/MGH Station and Bowdoin Station areas. These impacts are discussed below in Section 3.5.

⁵ MBTA. 2009. *Capital Investment Program, FY 2010-2014*. Available on-line at: http://www.mbtta.com/uploadedfiles/About_the_T/Financials/MBTA%20FY10-FY14%20CIP.pdf. Accessed 2 November 2009.

3.4 Alternative 2: Relocate Bowdoin Station

This Alternative would relocate the inbound platform of Bowdoin Station while maintaining the existing mezzanine and headhouse (Appendix B). Under this scheme, Bowdoin Station would be able to accommodate six-car trains, improving the ridership capacity from this site. Access to the platforms from the headhouse would be made via ADA-compatible escalators, elevators and stairway connections. It is assumed that the hours of operation and frequencies on the Blue Line would remain unchanged under this alternative, except the hours of operation at the Bowdoin Station would be expanded to match the other Blue Line stations.

3.4.1 Direct Impacts

There are no direct permanent impacts to land uses from Alternative 2, as there are no proposed land acquisitions or displacements.

3.4.2 Indirect Impacts

Indirect impacts to land uses within the project area are limited to temporary changes in accessibility to businesses from the sidewalk within proposed construction work zones at the Charles/MGH Station and Bowdoin Station areas. These impacts are discussed below in Section 3.5.

The inclusion of ADA-compatible escalators, elevators and stairway connections at the reconstructed Bowdoin Station would include a slight encroachment into the City of Boston's public way area that the existing Station is within. However, this work does not encroach into the protected park area. There may also be some trees located within the City's property that may need to be replaced subsequent to construction.

3.5 Construction Activities

The tunnels for the Blue Line extension under Cambridge Street west of the Bowdoin Station would be constructed by a horizontal boring machine. This machine would bore the two (in-bound and out-bound) tunnels beneath existing infrastructure. Except at access points at either end of the alignment, all work along this segment would be completed below grade. Surface disturbance would be limited; any required detours would be scheduled at night or on weekends, rather than during weekday work hours. East of Bowdoin Station, for approximately 800 feet, cut-and-cover construction would be used to realign the existing tracks from Government Station. Traffic would not need to be detoured along this section of Cambridge Street during the construction period however, the area of excavation will be decked over.

Excavation may also be used to construct the short tail tracks immediately west of the Charles/MGH Station. The open trenches would be covered with traffic decking when possible. A staging area, tentatively established as a portion of the Massachusetts Eye and Ear Infirmary parking lot immediately north of the Charles/MGH Station, would be the main access point. A second access point would be established at the Bowdoin Station to allow for removal of the boring machine.

A project requirement is that four lanes of automobile traffic, and unimpeded pedestrian traffic, be retained at all times except during night-time and weekend work periods. Traffic would be disturbed by the temporary detours. Noise and air emission sources would be limited to the access points and ventilation shaft locations.

Impacts to land uses during the construction period may be associated with the temporary rerouting of traffic along the moving work zones described above, which could temporarily impair ease of accessibility to some businesses and residences along the corridor. Some pedestrian traffic may also be impacted along Cambridge Street due to work zone locations (e.g., rerouting of pedestrian crossings and alterations to pedestrian routes). Further details regarding work zone areas and potential impacts may be found in the Construction Impacts and Traffic Technical Memorandums.

Article 97 protected lands within Cardinal Cushing Park at Bowdoin Station and the Charles River Reservation at the Charles/MGH Station would be temporarily impacted by construction. Permanent use of these parks as conservation/recreation areas would not be changed. However, pedestrian access through Cardinal Cushing Park would be temporarily rerouted to a walkway on the northern side of the park, immediately in front of the One Bowdoin Square building. A temporary construction work zone would be located within the Charles River Reservation adjacent to the Charles/MGH Station. Traffic would be temporarily rerouted during night and weekend construction. Access to the Massachusetts Eye and Ear Infirmary parking lot north of the Charles/MGH Station; leased from DCR to Mass Eye, would be eliminated during construction while this area is used for staging. A temporary occupancy permit during construction within the Reservation boundary is anticipated to be required.

Temporary construction easements to facilitate construction would be required at the following locations:

- Parking Lot south of Cambridge Street (Adjacent to West Cedar Street) – Eye Research Institute; and
- John F. Kennedy Federal Building Plaza (plaza/handicapped parking area in front of the building) – Boston Redevelopment Authority

Impacts to these properties would include temporary restrictions on access to these properties during construction. The use of the parking lot at the intersection with West Cedar Street would be temporarily restricted due to the construction of the new Blue Line platform. Vehicle access to the John F. Kennedy Federal Building Plaza would be temporarily restricted during construction of the eastern tunnel.

3.6 Regulatory Compliance

The primary regulatory restrictions on land use within the project area come from the 97th Amendment to the Massachusetts Constitution protecting conservation and recreation uses, Massachusetts Public Waterfront Act, and the City of Boston Zoning Code. Regulatory compliance with these regulations by the Red Line/Blue Line Project is discussed in the following sub-sections.

3.6.1 Massachusetts Constitution Article 97

The project is located within the limits of Cambridge Street, owned and managed by the City of Boston. However, temporary impacts to Article 97 protected lands within Cardinal Cushing Park at Bowdoin Station and the Charles River Reservation at the Charles/MGH Station would occur during construction. These construction-related impacts would include temporary alteration to the pedestrian walkways through Cardinal Cushing Park and the easternmost boundary of the Reservation, adjacent to Charles Circle. In addition, temporary vehicular and pedestrian access to Charles Circle, within the Reservation, would be required during construction of the subway tunnel and Blue Line Platform, which would require a temporary occupancy permit from DCR.

3.6.2 Massachusetts Public Waterfront Act

The project is subject to the Massachusetts Public Waterfront Act; Massachusetts General Law Chapter 91, and its accompanying Waterways Regulations (310 CMR 9). Specifically, a portion of the project area includes Landlocked Tidelands. Cambridge Street east to North Anderson Street, and adjacent land uses and public walkways are presumed to be included in this jurisdictional area. Impacts to filled Landlocked Tidelands from both proposed Build Alternatives include the excavation of fill and placement of structures along Cambridge Street during the tunnel boring phase of the project. Impacts to these tidelands are limited to temporary traffic detouring and limited public access along adjacent walkways during construction.

Although alterations to Landlocked Tidelands do not require a Waterways License, they are subject to a Public Benefit Determination per the Massachusetts Environmental Policy Act regulations (310 CMR 13). It is likely that the project would be classified as a Nonwater-Dependent Project since it does not meet the

Water-Dependent criteria under 310 CMR 9.12. In making the public benefit determination for Nonwater-Dependent Projects, the Secretary of the Massachusetts Executive Office of Energy and Environmental Affairs will consider the following project elements:

- Purpose and effect of the project;
- Impact on abutters and the surrounding community;
- Enhancement to the property;
- Benefits to the public trust rights in tidelands or other associated rights, including benefits provided through previously obtained municipal permits;
- Community activities on the site;
- Environmental protection and preservation;
- Public health and safety, and the general welfare.

Primary public benefits of the project include increased transit accessibility, equitable distribution of transit services, increased transit ridership, and improved regional air quality. Impacts to abutters would be temporary from construction activities, as discussed previously. The project protects and preserves environmental resources by utilizing an underground rail corridor rather than creating an above, light-rail corridor that would require additional land resources and potentially result in impacts to adjacent natural resources. In addition, public health goals of the Commonwealth would be met by improving regional air quality, reducing regional emissions of green house gases, and reducing the region's dependence on petroleum.

3.6.3 Boston Zoning Code

Article 8; Regulation of Uses, specifies the baseline of allowable and conditional uses within the City, including the project area. Table A of the ordinance lists all uses and includes a separate section for transportation uses. Railroad facilities are allowed in all zoned areas within the project area: Local and General Business, and Restricted and General Industrial use zones. There are no additional limitations on transportation uses within the Cambridge Street North zoning subdistricts; Charles Street Jail North and South Protection Planned Development Areas (Article 47A). Therefore; the Build Alternatives would comply with existing zoning.

3.7 Mitigation

The Build Alternatives do not require any land acquisitions, therefore; no mitigation is required. Temporary impacts to Cardinal Cushing Park will be mitigated through capital improvements to the park such as improved lighting, seating, and landscaping. Shade trees will be replaced if it is deemed necessary to remove them during construction.

3.8 Summary

The entire project, with the exception of Bowdoin and Charles MGH Stations and North Anderson/Cambridge Street Park, lies within Cambridge Street, owned by the City of Boston. Therefore, there would be no property acquisitions or land transfers, and therefore; no direct impacts to land use within the project area.

In general, the Build Alternatives may temporarily decrease commercial uses along the corridor from pedestrian/vehicular traffic detouring. However, upon project completion, the corridor may benefit from an influx of businesses that would benefit from the proximity to MGH and additional access to the corridor. Conceptual designs for the Build Alternatives have been developed with the specific intent of eliminating the need for land acquisitions. The use of the existing right-of-way and station areas eliminates this need, which would be much higher for an extension that involved establishing a new right-of-way through developed properties.

Figures

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